CLAIMS

What is claimed is:

1. A system comprising:

a target node that, in response to a source broadcast request for requested data, provides a response that includes a copy of the requested data, the target node also providing a blocking message to a home node associated with the requested data, the blocking message being operative cause the home node to provide a non-data response to the source broadcast request if the blocking message is matched with the source broadcast request at the home node.

2. The system of claim 1, wherein the home node provides a response to the source broadcast request comprising one of a data response that includes a copy of the requested data and the non-data response; the response to the source broadcast request provided by the home node varying based on the home node matching any blocking message with the source broadcast request.

3. The system of claim 2, wherein the home node provides the data response if the blocking message from the target node arrives at the home node one of (i) before the source broadcast request arrives at the home node or (ii) after the home node provides the data response.

4. The system of claim 3, further comprising a source node that provides the source broadcast request for the requested data to the system, the source node including a cache, the source node filling the cache with an up-to-date copy of the requested data based on responses received by the source node from the target node and the home node.

5. The system of claim 1, wherein the blocking message from the target node further comprises an identifier associated with the source broadcast request.

6. The system of claim 5, wherein the identifier further comprises a transaction identifier that enables the home node to match the blocking message from the target node with the source broadcast request received by the home node.

7. The system of claim 1, wherein the home node provides the non-data response if the blocking message matches a transaction for the source broadcast request that is queued at the home node prior to implementing a memory access for the requested data.

8. The system of claim 1, wherein the home node provides the non-data response if the blocking message matches a transaction for the source broadcast request during memory access being performed for the transaction at the home node.

9. The system of claim 8, wherein the home node performs the memory access to obtain a copy of the requested data from memory, the home node dropping the copy of requested data obtained from the memory in response to the blocking message being matched with the transaction and the home node providing the non-data response.

10. The system of claim 1, wherein the target node further comprises a processor that includes an associated cache having a plurality of cache lines, one of the plurality of cache lines including the requested data and having a state that defines the one of the cache lines as a cache ordering point for the requested data.

11. The system of claim 9, wherein the target processor provides the response that includes the copy of the requested data as one of a shared data response and an ownership data response.

12. A computer system, comprising:

a source processor that issues a source broadcast request for data; and

an owner processor having an associated cache that includes the data in a given cache line, the owner processor providing a response to the source processor that includes the data, the owner processor also providing a blocking message to a home node associated with the data; and

the home node providing a memory data response to the source broadcast request if no blocking message is matched with a transaction for the data at the home node, and the home node providing a non-data response to the source broadcast request if the blocking message is matched with the transaction for the data at the home node.

13. The system of claim 12, wherein the blocking message from the owner processor further comprises an identifier associated with the source broadcast request.

14. The system of claim 13, wherein the identifier further comprises a transaction identifier that enables the home node to match the blocking message from the owner processor with the transaction for the data.

15. The system of claim 12, wherein the home node provides the non-data response if the blocking message matches the transaction for the source broadcast request that is queued at the home node prior to implementing a memory access.

16. The system of claim 15, wherein the home node provides the non-data response if the blocking message matches the transaction for the source broadcast request during memory access being performed for the transaction at the home node.

17. The system of claim 16, wherein the home node performs the memory access to obtain a copy of the data from memory, the home node dropping the copy of data obtained from the memory in response to the blocking message being matched with the transaction and providing the non-data response.

18. The system of claim 12, wherein the home node provides the data response if the blocking message arrives at the home node one of (i) before the source broadcast request arrives at the home node or (ii) after the home node provides the data response, the home node discarding the blocking message if the blocking message is not matched with the transaction for the data at the home node.

19. The system of claim 12, wherein the source processor further comprises a cache, the source processor filling the cache with an up-to-date copy of the data based on responses received by the source processor from the target processor and the home node.

20. The system of claim 19, wherein the system employs a source broadcast protocol that defines rules for processing the source broadcast request issued by the source processor and the responses provided by the target processor and the home node, the source processor

retrying the request if the source processor fails to receive a response that includes a copy of the data.

21. The system of claim 20, wherein the source processor retries the request employing a forward progress protocol comprising one of a directory-based protocol and a null-directory protocol.

22. A multiprocessor system, comprising:

means for providing a response from cache of a first processor to a source broadcast request, the response including a copy of data requested in the source broadcast request ; and

means for issuing a blocking message to a home node that enables the home node to provide a non-data response to the source broadcast request in place of a corresponding data response.

23. The system of claim 22, further comprising means for matching a transaction associated with the source broadcast request at the home node with the blocking message.

24. The system of claim 23, wherein the home node provides the corresponding data response when no blocking message matches with the transaction at the home node, the corresponding data response comprising a memory copy of the data identified in the source broadcast request.

25. The system of claim 22, further comprising means for defining the cache of the first processor as a cache ordering point for the data identified in the source broadcast request.

26. The system of claim 25, wherein the response from the cache of the first processor comprising one of a shared data response and an ownership data response based on the means for defining the cache of the first processor.

27. The system of claim 22, further comprising:

means for performing a memory access at the home node to obtain a copy of the data identified in the source broadcast request;

means for dropping data obtained from the memory access at the home node in response to the blocking message being matched with a transaction associated with the source broadcast request, such that the home node provides the non-data response.

28. A method comprising:

providing a data response from an owner processor node to a source broadcast request for requested data; and

selectively providing one of a non-data response and a data response from a home node to the source broadcast request based on whether a blocking message is matched with a transaction associated with the source broadcast request at the home node.

29. The method of claim 28, further comprising:

matching the blocking message with the transaction associated with the source broadcast request at the home node; and

providing the non-data response from the home node in response to the matching of the blocking message with the transaction associated with the source broadcast request at the home node.

30. The method of claim 29, wherein the matching further comprises matching the blocking message with the transaction associated with the source broadcast request at the home node prior to implementing a memory access for the requested data.

31. The method of claim 29, further comprising performing a memory access at the home node for a memory copy of the requested data, the matching further comprises matching the blocking message with the transaction associated with the source broadcast request during performance of the memory access at the home node.

32. The method of claim 31, further comprising dropping the memory copy of the requested data in response to the blocking message matching with the transaction associated with the source broadcast request and providing the non-data response from the home node.

33. The method of claim 28, further comprising:

broadcasting the source broadcast request from a source processor node; and

wherein the owner processor node includes a cache that contains a cached copy of the requested data in a state that defines the owner processor node as a cache ordering point for the requested data, the data response provided from the owner processor further comprising one of a shared data response and an ownership data response depending on the state of the state of the cached copy of the requested data.

34. The method of claim 28, further comprising discarding the blocking message at the home node if the blocking message does not match with any transaction pending at the home node.